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Intelligence Memorandum

The Strait of Malacca: A Passageway of International Concern

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THE STRAIT OF MALACCA:
A Passageway of International Concern

The world's maritime commerce generally moves along well-defined routes, many of which converge upon critical areas of restricted passage such as the Panama Canal, the Strait of Gibraltar, and the Suez Canal. Often these passageways are essentially traffic choke points, either because of maritime congestion or, at times, because of physical impediments. The Strait of Malacca is such a passageway.

Lying between Sumatra and the Malay Peninsula, and consequently protected from both strong winds and rough seas, the Strait of Malacca is the shortest and most direct maritime route from the northern Indian Ocean to the South China Sea and the Pacific. Historically it has accommodated all classes of ships, but certain shallow sectors are now being viewed with increasing concern by business and government leaders in Southeast Asia and Japan. These sectors barely permit the passage of the present generation of 65-foot-draft tankers, and should they not be improved, they will be entirely inadequate for the 85-foot-draft tankers of the future.

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Still, the substantial international importance of the Strait of Malacca—economically, politically and militarily—makes its unimpeded and uninterrupted use by all nations almost imperative. Consequently, international cooperative efforts have been made to survey the waters of this passageway in order to improve navigational safety, to delimit territorial sea and continental shelf boundaries, and to consider the construction of a petroleum pipeline across the Kra Isthmus.

HISTORICAL DEVELOPMENT OF THE STRAIT TRADE ROUTE

Recognition of the value of the strait as a direct connection between the Indian Ocean and the South China Sea probably first occurred about 650 B.C., following Indian explorations into the Indonesian Archipelago. It was not until about the 4th century A.D., however, that the strait began to attract constant commercial use as a favored passageway for maritime trade between India and China. As trading activities expanded to include much of the Indonesian Archipelago, the northwest-southeast orientation of the strait enhanced its value. With its southeast end opening almost directly into the seas of the archipelago, the strait represented the most direct route between the Indonesian islands and ports of call to the west, particularly those along the Indian and Arabian Peninsulas.

The strategic significance of the Strait of Malacca became increasingly apparent, beginning in the 16th century, as European nations expanded their holdings and developed their rivalries throughout the Far East. Control of the strait was a constant concern of the colonial powers, and their anxiety in this sphere led to the founding and development of Singapore, whose growth as the entrepot port of Southeast Asia, in turn, encouraged greater use of the strait.

The opening of the Suez Canal in 1869 also encouraged merchant vessels to use the strait, as it then became a segment of the most direct route between the Far East and Europe. Prior to this time ships moving between these areas were required to make the long trip around the Cape of Good Hope; to do so they usually departed from Southeast Asia via the Lombok or Sunda Straits, avoiding the Strait of Malacca because it was out of the way and oriented in the "wrong" direction.

The soaring East Asian demand for Persian Gulf oil during the last 2 decades has added a new dimension to the importance of the strait: nearly every barrel consumed is delivered via the Strait of Malacca. The strait is especially critical for Japan, which imports 90 percent of its 3.8 million barrel daily oil requirement through this passageway. In July 1968, Japanese shipping, shipbuilding, and oil interests created a privately financed Malacca Straits Council in Tokyo to study ways to ensure safe navigation in the strait. The council has sought permission to construct 30 lighthouses, beacons, and buoys along the strait.

The importance of the strait as a commercial corridor is reflected in the number of ships transiting the waterway. In 1968, an average of 900 oceangoing merchant ships passed through the strait each month. During this time the heaviest users were the UK, which averaged 165 ships monthly; Liberia had 100, Japan and Norway 80 each, and the Netherlands and West Germany 60 each.

PHYSICAL CHARACTERISTICS OF THE STRAIT

The Strait of Malacca is a 500-mile-long, funnel-shaped, and shallow body of water (see Map 500273). In the extreme northwest, where it opens into the Andaman Sea of the Indian Ocean, it has a maximum breadth of about 220 miles. It tapers toward the southeast, and in the vicinity of Singapore, it constricts to a minimum width of approximately 8 miles; this end of the strait is cluttered with many small islands.

Lying between Sumatra and Malaysia, the strait is protected from adverse winds, currents, and heavy seas. Visibility is generally good throughout the year, being only slightly reduced during short periods in summer when squalls, locally called *Sumatras*, sweep into the strait from the direction of Sumatra.

On the basis of depth, the strait can be divided at 100°50'E into two sections of unequal length. Nearly the entire northwestern section is deep enough to accommodate any ship now afloat, including the largest supertankers. Even the mammoth tankers now being designed will be able to navigate this portion of the Malacca Strait without fear of running aground, as depths range from approximately 125 feet to 250 feet.

The southeastern section, in contrast, is characterized by shallow waters and narrow shipping channels. Two areas within it are especially critical. At approximately 2°55'N 100°55'E the channel narrows to a width of only 6 miles and the water is only 84 to 90 feet deep. The second critical area lies southeastward from this point near the Singapore entrance to the strait at approximately 1°10'N 103°30'E. Waters here are equally shallow, and the main shipping channel is even more constricted, being only about 4 miles wide. Nevertheless, with precise navigation, existing supertankers can still pass through both areas. If they are not dredged and deepened, however, mammoth tankers of the future will not be able to use this section of the strait. (See Map 500273).

The strait is subject to sedimentation along its entire length. Deposits are extensive, and they severely limit the number of channels that are available to modern shipping, particularly in the extreme southeast. Contributing to the accumulation of sediments in the Strait are the mangrove stands that develop upon any bank or spit; these stands grow rapidly, and they, in turn, hasten the deposition and accumulation of sediments by hindering the scouring normally associated with wave action. Although tidal ranges in the Strait of Malacca vary from 4 to 13 feet, the average tides are only about 5 feet, and like the prevailing currents that are of tidal origin, do not have sufficient velocity to be effective scouring agents. The flood tidal current which flows from northwest to southeast averages approximately 2 knots, while the ebb tidal current, flowing in the opposite direction, averages approximately 2.5 knots.

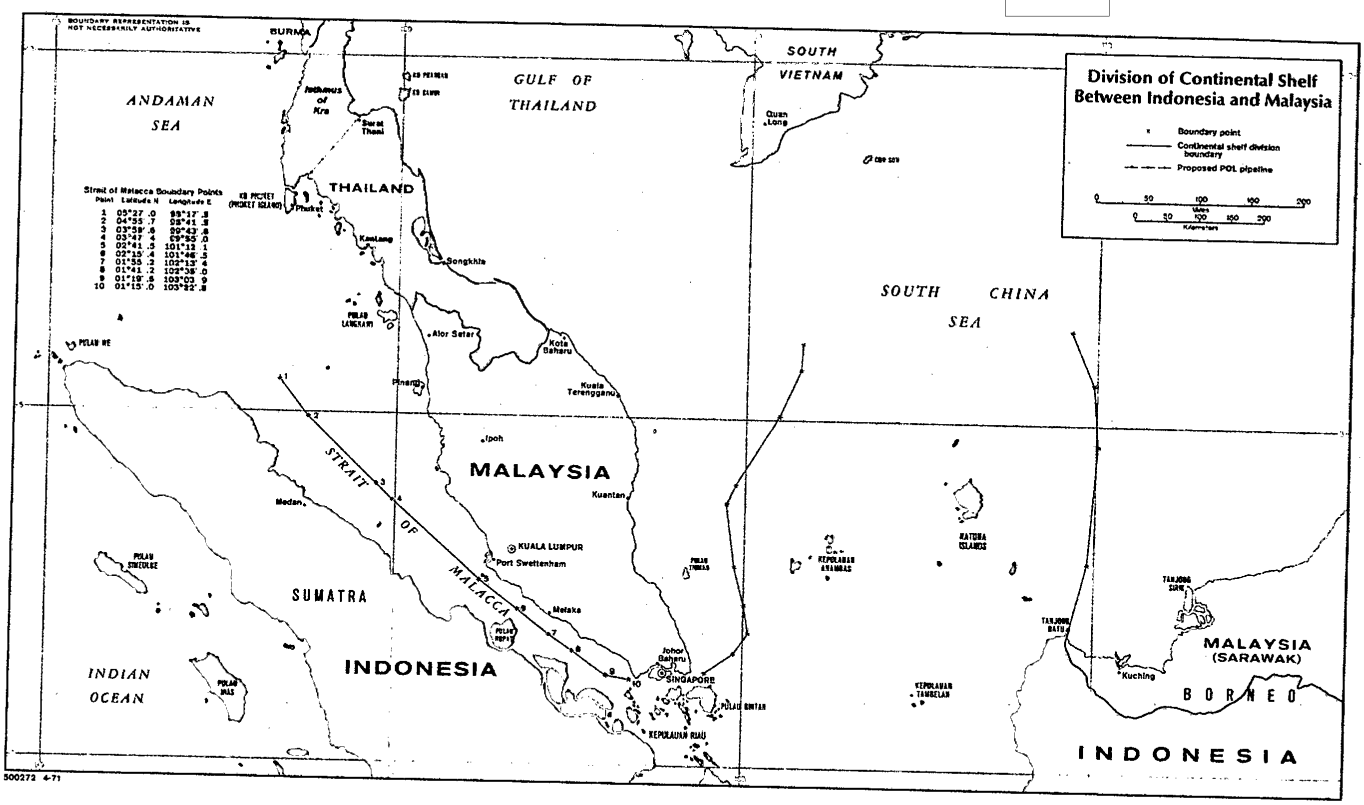
Heavy discharge of silt-laden waters from Sumatra has led to a partial filling of the southeastern half of the strait, and as a result, shallow waters extend from the island's shores far into the strait, in some locations as much as 25 miles. Consequently, the main shipping channel in the southeast is close to the Malaysian shore. Sedimentation is also increased because Sumatra shields the strait from the strong wave action of the Indian Ocean.

A peculiar tidal influence contributes to particularly rapid sedimentation of the southeastern end of the strait. Indian Ocean tides moving from the west down the funnel-shaped strait toward Singapore carry sediment eastward. These tides are met by others originating in the South China Sea and the Java Sea. As these tides converge just to the south of Singapore, their scouring capacity is reduced, thus promoting a heavy deposition of suspended materials derived from the adjoining landmasses.

In consequence of the interactions of currents, tides, and heavily charged surface runoff, the topography of the bottom exhibits great irregularity. Channel banks with 60 to 120 feet of local relief parallel the main channel. Sand waves, with crest-to-trough heights of 12 to 18 feet, also parallel the long axis of the strait. Most of the bottom material is not solid; mud and sand are predominant, with large areas of the former occurring near stream mouths. Limited areas of solid bottom materials, composed primarily of coral, are located in the rather shallow waters immediately south of Singapore. Except in these coral areas, dredging operations to deepen selected portions of the channel would not be difficult, in view of the rather "soft" nature of most of the bottom.

VULNERABILITY

The Strait of Malacca is vulnerable to blockage by either natural causes or deliberate interdictory action. Closure of it, however, would have less of an impact on the world than the blockage of the Suez Canal, but



such an action would nevertheless have serious regional consequences.

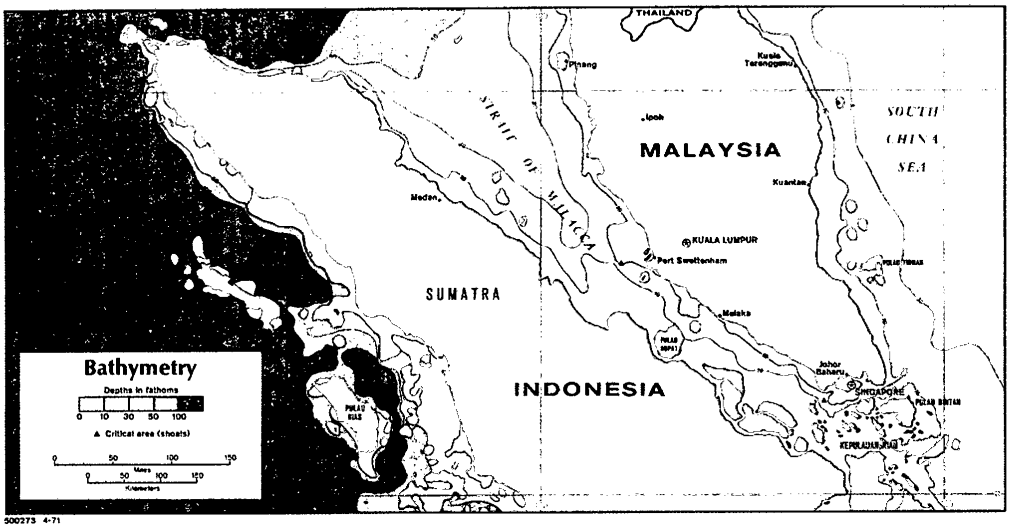
Recent hydrographic surveys have revealed major inaccuracies in previously accepted depth soundings in the strait. These inaccuracies are due in large part to the sediments that have accumulated since the last surveys were made. For example, the depth of one location, shown on hydrographic charts as 54 feet, was discovered to be actually only 20 feet deep. At another location in the most commonly used channel, sand waves and shoals were charted at a depth of 22 feet. More accurate and complete surveys will probably indicate a need for dredging to insure channel depths and widths that provide an acceptable margin of navigational safety. Dredged channels commonly require continuous maintenance; if dredging is neglected or interrupted for prolonged periods, large ships may not be able to use the strait.

By interdictory actions the adjoining nations could close the strait entirely or permit it to be opened only to limited traffic. All of them have the capability to unilaterally harass shipping under the guise of exercising sovereign rights in territorial waters.* Such actions might include the interception and delay of ships that are alleged to have either intruded the territorial sea in a hostile manner or to have violated the sanitation, health, or customs regulations of the coastal nation. Numerous small craft, ostensibly "fishing" in the more hazardous passages, could impede the movement of large ships, which are always anxious to avoid collisions and the possible international incidents arising therefrom. Naval maneuvers, unannounced shifting of navigational aids, or intentional interference with shipboard electronic navigational systems in or near the strait also could restrict or interrupt normal traffic.

*The territorial sea is a zone of 3 to 12 or more miles extending seaward from the coast of a state. Complete sovereignty is maintained over the zone claimed by the coastal state, subject to the right of innocent passage. Indonesia and Malaysia claim a 12-mile territorial sea; Singapore claims a 3-mile zone. The band of water extending 9 miles beyond Singapore's territorial sea is considered a contiguous zone. International acceptance has historically permitted a coastal state to exercise such prerogatives as custom control and enforcement of public health regulations in the waters of its contiguous zone.

Localized conflict, such as the Indonesia-Malaysian confrontation in the period of 1963-1965, could generate conditions that would make strait passage uncertain at best. Such latent threats cause Japan, which is almost totally dependent on petroleum transiting the strait, to be especially concerned with developments in the area. Japanese sensitivity was amply demonstrated when Malaysia announced its claim of a 12-mile territorial sea in October 1969; Japan immediately presented a formal diplomatic protest to Kuala Lumpur, but Malaysia, anticipating this reaction, ignored the protest. As Indonesia already claimed a 12-mile territorial sea, this Malaysian announcement theoretically removed most of the waters of the strait from the high seas. In practice, however, the right of innocent passage prevails to the obvious benefit of all nations.

Finally, the strait is vulnerable to naval blockade. Entrances are restricted, thus permitting tight control by patrolling surface craft. The strait could also be blocked by the defensive mining of selected channel transit points. It is questionable, however, that the sinking of ships in the shallow waters of narrow channels would be effective. Such an extreme measure might be self-defeating, an act of desperation that would block the channel to all nations.



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ALTERNATE ROUTES

Existing Passages

The Sunda Strait and the Lombok Strait, located about 7° and 10° south of Singapore, respectively, offer alternate passages into the Indian Ocean. Utilization of either of them, however, would add appreciably to the average length of voyage. This, in turn, would increase the operational costs* of shipping companies and reduce the number of round trips that could be made in a given period of time; to the military, the cost of using an alternative passage is measured primarily by the additional time required to deploy fleet elements from one ocean to another.

The Sunda Strait, between Sumatra and Java, is 12 miles wide and has a limiting depth of 162 feet; it is divided by a small island into two channels, 4 and 5½ miles wide, respectively. The Lombok Strait, between Bali and Lombok, has a minimum channel width of 5½ miles and a minimum depth of 1,110 feet. The use of the Lombok Strait by mammoth tankers carrying Persian Gulf oil to Japanese ports would add 3 days and another 1,000 nautical miles to the voyage; if the Sunda Strait were used, about 2 days and an additional 700 miles would be required.

The vulnerability of the Strait of Malacca has fostered a wide range of contingency plans concerning the bypass of these potentially troublesome waters. The most widely discussed proposal is one that would create another passage across Thailand's Kra Isthmus. This concept is not new; the British and French surveyed the area for this purpose in the latter part of the 19th century. The Japanese also proposed the construction of such a canal prior to World War II, and during that war, when their forces were dominant in the region, they seriously considered building it. The necessary detailed engineering design and cost studies have never been completed, however, and other than as a sporadic issue in domestic Thai politics, this alternative to the Strait of Malacca has not been given much attention in recent years.

*More than $30,000 per day on 200,000-ton tankers.

Proposed Pipeline

Japan's soaring dependency on Persian Gulf Oil in recent years has rekindled her interest in finding an economical alternative to the Strait of Malacca. Out of this revitalized interest a new and less expensive plan, involving an oil pipeline, has evolved. This proposed pipeline, 94 miles long, would cross the southern part of peninsular Thailand, extending overland from a point near Phuket Island on the west coast to Surat Thani on the east coast (see Diagram 510740). The 500,000-ton tankers, now being designed in Japan, would operate exclusively in the deeper waters of the Indian Ocean, and the existing fleet of smaller tankers would transport the oil from the terminus of the pipeline on the Gulf of Thailand to Japan. A Japanese study of the project was initiated about 2 years ago, and it is believed that the project could be completed in 3 or 4 years, given the approval of the Thai Government.

INTERNATIONAL COOPERATION

An unprecedented high level of international cooperation is being directed toward the improvement of the Strait of Malacca as a shipping route. A four-nation (Indonesia, Japan, Malaysia, and Singapore) preliminary hydrographic survey, undertaken in January 1969, revealed that five areas in the strait are so shallow that they "would not be safe for giant tankers over 200,000 tons to pass through the straits at all stages of tides and night." This discovery led the same nations in the summer of 1970 to agree to carry out a full-scale hydrographic survey of the strait. Whereas all of these countries are contributing something to this joint undertaking, Japan and Indonesia are assuming a major part of the responsibility. The former is financing the survey and providing advanced technology, and the latter is furnishing the survey ships. All stand to benefit, however, should the survey lead to improvements that would assure the continuance of the strait as an avenue of commerce. This is, of course, the basic aim of Japan as well as that of the adjoining coastal states, each of which recognizes the benefits to be gained by the elimination or reduction of navigational hazards in the more restricted channels. In addition, the risks of pollution and the possible destruction of marine life, resulting from oil tanker spillage or collision, could be minimized.

The United Kingdom is also working in the straits. Their hydrographic ship *Hydra* is conducting a survey, presumably to provide information deemed essential for the implementation of British defense obligations. The *Hydra* survey, reportedly assigned in cooperation with Japanese-led surveying operations, is expected to be completed by April 1971.

Nations of the area, in an attempt to harmoniously develop the entire region, signed the first Asian continental shelf boundary (CSB) agreement in October 1969. In this accord, undertaken voluntarily and achieved through mutual concessions, the governments of Malaysia and Indonesia demarcated the CSB in the Strait of Malacca and the South China Sea. A few months later they reached substantial agreement on territorial waters in the Strait of Malacca. This was another significant achievement, as both nations had claimed a 12-mile territorial sea, thus provoking overlapping claims in those places where the strait is less than 24 miles wide. The territorial water boundaries agreed upon are identical with the CSB except for a very small area between boundary points 5, 6, and 7. (See Map 500272).

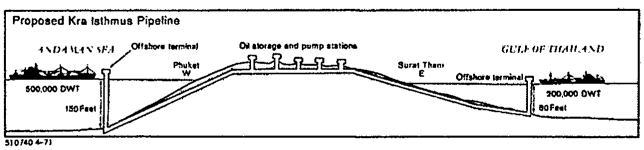
Relatively minor, but mutual, concessions have been made to reach these regional accords. In fear of external national and commercial interests becoming dominant in the strait, however, nations of the region may consider the creation of a littoral states strait commission. Legitimate concern about the environment, as well as the obvious commercial benefits brought by strait traffic, provides an extra measure of impetus for the creation of a regional organization that would coordinate development and provide for the control of this strategic international waterway.

OUTLOOK

The ever-increasing economic interdependence of world regions indicates that the tonnage of commodities transiting the strait to and from Asian commercial centers will increase. Forecasting his nation's future, Prime Minister Lee Kuan Yew of Singapore recently said, "As long as the balance of geopolitical forces in South, Southeast, and East Asia remain as they are, then Singapore's strategic value will remain undiminished." His statement appears equally valid for the entire Strait of Malacca area.

Although the British military presence in the strait area has been reduced, this policy reflects domestic retrenchment rather than a strategic reassessment of the area. Japan, China, Australia, and to a lesser extent, the United States and the Soviet Union also have individual concerns for the area. None, however, at least for the present, seem compelled to fill the "vacuum" created by the withdrawal of all but token British forces. Even if sufficiently motivated, it is unlikely that any single foreign power could achieve political predominance over the nations adjoining the Strait of Malacca in this era of rising nationalism among the developing nations.

Construction of a canal across the Kra Isthmus appears economically infeasible and unnecessary as the majority of the world's cargo ships, now in use and planned, will not require channel depths that are greater than those in the Strait of Malacca. The proposed pipeline, however, may well be constructed. It would permit the use of 500,000-ton Japanese tankers in the deeper waters of the Indian Ocean and on other deep-water routes and facilitate that nation's effort to tap a wider range of petroleum sources.



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